

# **Research on Supply Chain Contract Model considering Corporate Social Responsibility**

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## **ABSTRACT**

Corporate Social Responsibility (CSR) refers to enterprises are required to pay attention to society, the environment, consumers and other stakeholders during their operations. This paper establishes a Stackelberg game theoretical model to study the management of social responsibility efforts with supply chain contract model. The supply chain includes with a single upstream supplier and single downstream retailer. Retailer orders from supplier according to market demand and sells the product to the final market. The market demand function is given by linear demand function in price and CSR, the higher the CSR level, the greater the market demand. Without loss of generality, we assume that the supplier follows a lot-for-lot policy, i.e., the supplier's production lot size is equal to the lot size shipped to the retailer. We study three supply chain contract model: W-contract and D-contract in non-cooperation situation, C-contract in cooperation situation. We investigate decision-making issues such as the CSR, wholesale price, retail pricing, order quantity and system's expected profit of supply chain. We then analyse and compare the influence of the coefficient of supplier CSR on order quantity and system's expected profit of supply chain. The numerical analyses show that the C-contract is the optimal stratagem among the three. Meanwhile, supply chain D-contract is better than W-contract in non-cooperation situation.

**Keywords:** Supply chain, Contract model, Corporate social responsibility, Game theory